

REMARKS/ARGUMENTS

The Examiner is thanked for the courtesy of a telephone interview on October 25, 2010 during which the amendments presently set forth and Applicants' reasoning as to why the presently amended claims clearly distinguish over the references cited by the Examiner were discussed. Applicant respectfully submits that the substance of the interview is set forth in the following remarks.

As discussed in the interview, Applicant has amended independent claims 1, 10, 19, and 28 to further clarify embodiments of the invention.

Reconsideration in light of the amendments, the interview, and the remarks made herein, is respectfully requested.

Rejection Under 35 U.S.C. § 103

Claims 1-2, 4-11, 13-20, 22-29, and 31-36 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over U.S. Publication No. 2005/0091354 to Lowell et al. (hereinafter Lowell) in view of U.S. Patent No. 6,698,017 issued to Adamovits (hereinafter Adamovits).

To establish a *prima facie* case of obviousness, certain basic criteria must be met. For instance, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. MPEP §2143. Applicant respectfully submits that the combined teachings do not address each and every limitation, and thus no *prima facie* case of obviousness has been established.

Furthermore, the Supreme Court in Graham v. John Deere, 383 U.S. 1, 148 USPQ 459 (1966), stated: "Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined." MPEP 2141. In KSR International Co. vs. Teleflex, Inc., 127 S.Ct. 1727 (2007) (Kennedy, J.), the Court explained that "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands

known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order *to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.*” *Emphasis Added.* The Court further required that an explicit analysis for this reason must be made. “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” KSR, 127 S.Ct. at 1741, quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006).

As discussed with the Examiner during the interview, Applicant has amended independent claims 1, 10, 19, and 28 with some of the dependent claim features along with other features discussed to clarify embodiments of the invention. Utilizing amended independent claim 1 as an example, amended independent claim 1 generally recites: an apparatus comprising: a processor having a normal execution mode and a host execution mode *operable in a computer system...* a virtual machine monitor (VMM) implemented in the host execution mode creates original and target protected mode environments to operate guest software in a virtual machine, wherein responsive to a command to switch between the protected modes, the VMM causes the processor to atomically switch between the original protected mode environment and the target protected mode environment...and...a virtual machine control structure (VMCS) to store state information for use in switching between the original protected mode environment and the target protected mode environment, the VMCS to store state information related to the original protected mode environment, *wherein the VMM causes the processor to enter a virtual machine execution (VMX) mode to enable virtual machine functionality to switch between protected modes including exiting out of the original protected mode environment, entering into the target protected mode environment, and then the VMM causing the target protected mode environment to exit out of the VMX mode such that the same processor of the computer system resumes operation in the target protected mode environment.*

To begin with, Lowell, as the Examiner recognizes, is related to a very different invention. As set forth in the Abstract of Lowell, Lowell relates to: online computer maintenance that is performed on at least one node...a virtual machine monitor is run...a first

operating instance is run on the virtual machine monitor...and a second operating system instance is run on the virtual machine monitor as a substitute for the first instance...the maintenance is performed with respect to one of the instances while using the other of the instances. (Emphasis added).

As recognized by the Examiner, paragraph [0023] of Lowell teaches that the advantages of Lowell is that since at least one of the first and second OS instances is being used during maintenance, the maintenance is performed without incurring downtime. As a benefit, applications can be run on the one OS instance while the other OS instance is being serviced. Thus, Lowell teaches that online computer maintenance can be performed by utilizing VMMs. Accordingly, Lowell is related to a very different invention in that the VMM is utilized for testing different hardware.

As the Examiner recognizes on page 3 of the Office Action: “Lowell does not specifically teach a processor having a normal execution mode and a host execution mode; and a virtual machine control structure (VMCS) to store state information for use in switching between the original protected mode environment and the target protected mode environment, the VMCS to store state information related to the original protected mode environment.” (Emphasis added). Moreover, Lowell does not teach or suggest Applicant’s other claim limitations as set forth in Applicant’s amended independent claims 1, 10, 19, and 28.

The Examiner utilizes Adamovits to allegedly teach or suggest these admitted missing claim limitations.

Applicant respectfully submits that like Lowell, Adamovits is also related to a very different invention.

Adamovits as set forth in the Abstract, relates to a system that is provided for performing a migration of control over a processing element from an original software system to a replacement software system....a replacement system in memory associated with an active processing element is configured while an original software system controls the active processing element...the replacement software system is prepared to take control of the active

processing element when state information is communicated to it from the original software system. (Emphasis added).

Applicant respectfully submits that neither Lowell or Adamovits teaches or suggests a virtual machine control structure (VMCS) to store state information for use in switching between the original protected mode environment and the target protected mode environment, the VMCS to store state information related to the original protected mode environment, *wherein the VMM causes the processor to enter a virtual machine execution (VMX) mode to enable virtual machine functionality to switch between protected modes including exiting out of the original protected mode environment, entering into the target protected mode environment, and then the VMM causing the target protected mode environment to exit out of the VMX mode such that the same processor of the computer system resumes operation in the target protected mode environment.*

The Examiner alleges that paragraphs [0018], [0034], [0046] of Lowell are allegedly related to a virtual machine execution (VMX) mode that exits out of the original protected mode environment and enters into a target protected mode environment.

Applicant respectfully disagrees.

To begin with, Lowell is related to a very different invention. In particular, Lowell relates to performing maintenance functions for different hardware.

For example, paragraphs [0018]-[0023] of Lowell describes how when the VMM starts an OS instance, it may configure the hardware to trap when the OS instance executes privileged instructions such that an illusion is created that the OS instance has sole control of the hardware in which it runs and since at least one of the first and second OS instances is being used during the maintenance, the maintenance is performed without incurring downtime...(Emphasis added).

As set forth in paragraph [0034] – [0036] as relied upon by the Examiner, the VMM migrates the application from the first OS instance to the second OS instance and thereafter shuts down the first OS instance...before removing the hardware, the system administrator may invoke a program that instructs the node to prepare for a device removal...for example, if the hardware change includes removing a card from a bus slot...the system administrator may invoke a

program that powers down the bus slot used by the card...before the hardware is removed, the VMM releases its own dependencies on that hardware...the hardware may be removed safely while the user uses the second OS instance and the application running on the second OS instance...(Emphasis added).

Thus, Lowell, as relied upon by the Examiner, is related to removing hardware safely during maintenance while the user uses a second OS instance while the application runs on the second OS instance.

As discussed with the Examiner during the interview, Applicant respectfully submits that nowhere does Lowell or Adamovits teach or suggest: a processor having a normal execution mode and a host execution mode *operable in a computer system...* a virtual machine monitor (VMM) implemented in the host execution mode creates original and target protected mode environments to operate guest software in a virtual machine, wherein responsive to a command to switch between the protected modes, the VMM causes the processor to atomically switch between the original protected mode environment and the target protected mode environment...and...a virtual machine control structure (VMCS) to store state information for use in switching between the original protected mode environment and the target protected mode environment, the VMCS to store state information related to the original protected mode environment, *wherein the VMM causes the processor to enter a virtual machine execution (VMX) mode to enable virtual machine functionality to switch between protected modes including exiting out of the original protected mode environment, entering into the target protected mode environment, and then the VMM causing the target protected mode environment to exit out of the VMX mode such that the same processor of the computer system resumes operation in the target protected mode environment.*

Because Lowell and Adamovits are related to very different inventions and do not describe or suggest the elements of Applicant's amended independent claims 1, 10, 19, and 28, Applicant respectfully submits that these amended independent claims, and the claims that depend therefrom, are not rendered obvious by the combination of Lowell, Adamovits, and the other prior art of record.

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Applicant respectfully requests that the Examiner allow these claims and pass them to issuance.

Conclusion

In view of the remarks made above, it is respectfully submitted that pending claims 1, 4-5, 9-10, 13-14, 18-19, 22-23, 27-28, 31-32, and 36 are allowable over the prior art of record. Thus, Applicant respectfully submits that all the pending claims are in condition for allowance, and such action is earnestly solicited at the earliest possible date. The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application. To the extent necessary, a petition for an extension of time under 37 C.F.R. is hereby made. Please charge any shortage in fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 02-2666 and please credit any excess fees to such account.

Respectfully submitted,

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